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The Free Rhine

Report on the Reasons for Preserving the Natural Channel of the Rhine between Basle and Rotterdam as a Waterway for Large Vessels

By

R. GELPKE

Member of the Swiss Parliament
(Conseil National)

Price: Fr. 2.—

BASLE
Society for the Navigation on the Upper-Rhine
Blumenrain 32
1920

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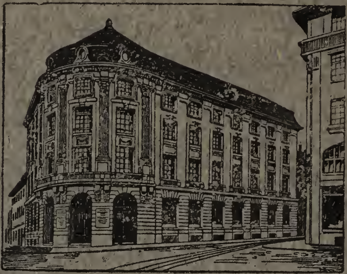

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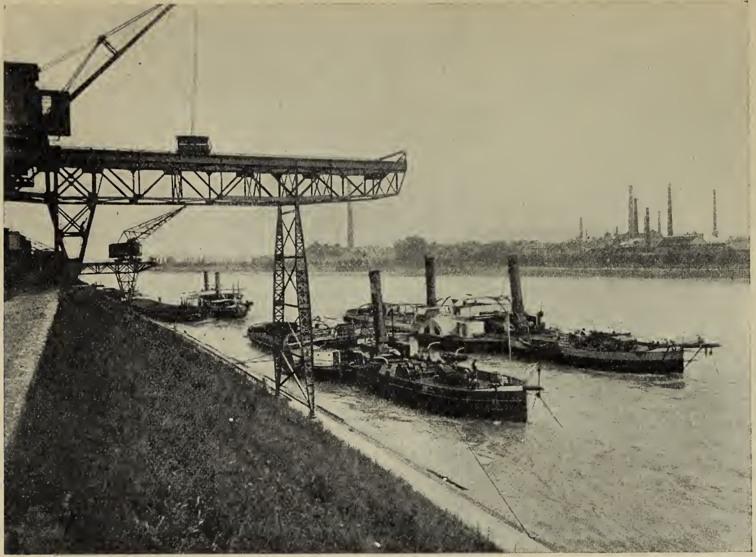

Tugs in the Harbour of Bâle.

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THE FREE RHINE

(Report on the Reasons for Preserving the Natural Channel of the Rhine between Bâle and Rotterdam as a Waterway for large Vessels)

by

R. GELPKE

Member of the Swiss Parliament (Conseil National)

FOR the first time within more than a century the principle of free navigation on international rivers is in danger of being reversed. The most important natural inland waterway of the European continent is the Rhine, which connects the most frequented commercial area of the southern part of the German Ocean with the Alpine region of Central Europe. The length of the natural water course between Rotterdam and Bâle amounts to 545 miles. Of this a section of 80 miles, being the southern end between Bâle and Strassburg, it is now proposed to sacrifice. Regional interests, mainly directed towards utilising locally the water power of the section mentioned, have started the scheme of establishing on the left, Alsatian, bank a canal of about 80 miles' length, fitted out with numerous locks, and intended to supply water power for electric plants and water for irrigation, and to serve for navigation. When carried out, this scheme would leave for the shipping traffic between London, Antwerp, Rotterdam, Amsterdam on the one hand and Bâle, the focus of the traffic of the Central European continent, on the other hand, an artificial territorial water with 8—10 lock levels in the place of the open, lockfree, international waterway of the river Rhine, with its unlimited facilities for increasing its capacitiy for traffic.

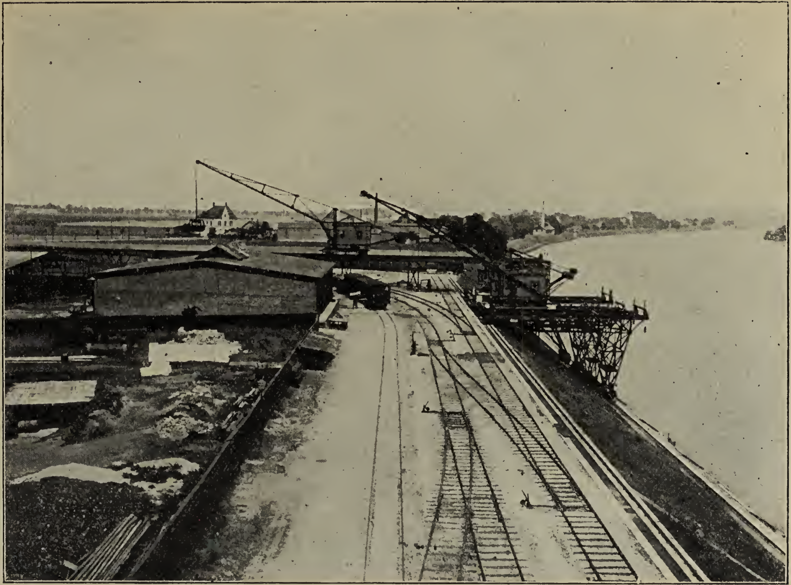
The Alsatian-French point of view has been made known by innumerable pamphlets, speeches, newspaper articles. Its aim is to favour exclusively the Alsatian-French canal system, the Atlantic and Mediterranean commercial ports of France, the agriculture of Alsace (through irrigation from the Rhine), and Alsatian-French industry (through power stations to be established on the Rhine). It does not shrink from reducing, for all its eminent importance, the navigation on the Rhine — safeguarded, too, by international law (Acts of the Vienna Congress 1815, Rhine Navigation Act of October 17th 1868) — to such a point as to exclude artificially, in the course of time, from the commercial centre, hitherto their proper and natural domain, the English, Belgian, and Dutch commercial ports on the North Sea. By virtue of Art. 358 of the Versailles Treaty, granting to her the exclusive right of exploitation of the river from Bâle to Lauterburg (frontier of the Palatinate), France now claims to dispose of the international Rhine as she would of any purely French waterway such as the Rhone, the Loire, the Garonne, the Seine, or others.

The contention that the relatively strong current (average fall between Bâle and Strassburg 0.87 °/oo) is specially favourable for the setting up of power stations is not tenable in so far as the same reason would call for a similar use of the water power on the stretch between Bingen and Coblentz, which also has a strong current and would offer the additional advantage of double the volume at low water. And with the same semblance of justification, the tide on the lower course of the Thames between London and its mouth, and the Scheldt between Flushing and Antwerp might be used to produce water power; all that is needed would be a suitable dam closing up the river mouths. But who would ever consider such a device?

The power problem on the Rhine can be solved in a much more advantageous manner than the one indicated. Between Schaffhausen and Bâle, where the river is rendered unnavigable by numerous rapids, no less than 455,000 HP are waiting to be made available. The cost would be one half of what the constructions required on the Rhine below Bâle would demand. Switzerland would not hesitate to place part of this power at the disposal of the Alsatian industries on the most favourable terms.

Neither is there any lack of water courses for power stations in France. Reliable statistics show that on the French rivers, not including the Rhine, above nine million HP remain to be turned to use. Nobody would think of estimating the value of forests exclusively from the point of view of the timber to be got out of them; nobody would think of drawing fuel from peat fields so long as there is plenty of coal; nobody would think of exploiting the treasures of nature regardless of everything else and merely and solely according to the greatest financial and local advantage. So, too, it would seem inconceivable that such a unique, incomparable international asset as the Rhine between Bâle and Rotterdam should be sacrificed to certain local and special interests at the expense of the universal interests, which, in this case, is international navigation.

A canal along the left bank of the Rhine between Bâle and Strassburg would make a very inferior waterway compared to the open Rhine. This is sufficiently borne out by the fact that such a canal is mainly advocated by Alsatians on the plea that Strassburg should remain the terminus of the navigation on the Upper Rhine, and that Bâle should be cut off from the traffic on the Rhine. But there are a great many technical reasons for preserving the river itself as a waterway for big ships. These reasons have been pointed



In Bâle Harbour.

out in numerous publications and resolutions by various organs of the Navigation Society (Schiffahrtsverein). We cannot here enter upon all the points of view there set forth in detail regarding the technical side of the problem. Nor is there any need to do so, since the general situation is obvious enough.

Existing traffic.

In the first place it must be kept in mind that the open Rhine on the stretch between Strassburg and Bâle is even now used for navigation with large vessels. It allows tugs of as much as 1400 HP and freight barges of 1300 tons capacity to ply freely on 180 to 200 days a year. Above half a million tons of freight goods have been carried on the Rhine from Rotterdam to Bâle and from Bâle to Rotterdam since 1905. In the two years immediately preceding the war, 1913 and 1914, 100,000 tons of goods approximately were shipped to and from Bâle in the tug traffic. It must be remembered that from the outbreak of the war to the present time navigation was partly at a standstill, and partly so hampered that it could be kept going only under very serious difficulties. We do not risk incurring the reproach of exaggerating the advantages of navigation on the Rhine, if we contend that, granting proper assistance on the part of the organs entrusted with the control of the river, both in the matter of keeping the shipway open by means of regular dredgings, and other measures facilitating navigation (notably the prompt and sufficient opening of the pontoon bridges), the yearly traffic at Bâle might even to-day amount to a million tons. This, to be sure, on the assumption that the docking arrangements on the Rhine at Bâle could have been brought up to the mark. This development is all the more noteworthy as the navigation with large ships has progressed in spite of complete indifference, if not hostility, on the part of the authorities; a sure proof of the eminent capacity of the Rhine from Strassburg upwards to serve as a waterway for navigation.

The regulation.

The first object to be aimed at within the scheme of general improvements of shipping conditions on the river as a whole is to create uniform depths and an unbroken fall. This can be achieved by fixing the river-bed in one compact channel, doing away with the splitting tendencies of the current, which have hitherto led to the formation of a so-called main channel with a number of secondary channels. This fixing of the river channel with the aid of dikes and conduits is spoken of as regulation.

On a stretch of 440 miles, from Rotterdam to Strassburg, the work of the low water regulation is in the main completed. From

In Bâle Harbour.

On the Deck of an 800 Ton Rhine Barge.

the Rhine mouth up to Strassburg, on an average of 318 days, the minimum low water depth is two meters. The regulation between Mannheim and Strassburg was completed only a few years ago. The character of this section, as regards its unruly tendencies, was altogether similar to that of the stretch from Strassburg upwards. The volume of water, too, is approximately the same, so that it must be possible to create, here as there, a navigation road with a minimum depth of two meters. The estimated cost, at pre-war rates, amounts to some 30 million francs. Within six to eight years' time a regular shipping service might be secured, and after ten to twelve years the open and lockfree Rhine would be uniformly regulated between Rotterdam and Bâle, a distance of 512 miles. And even if in one place, at Istein, where in consequence of neglect an irregular, stairlike fall has been formed, a short side-canal should have to be constructed to allow the introduction of twin locks to facilitate the up-river traffic, the main waterway would still be the unobstructed, free Rhine. The passage of the rocky levels at Istein before the war left nothing to be desired. Blastings in the navigable water during the war, carried out by men unfamiliar with the conditions, have impaired the fair-way in this particular spot. But here too, regulation will remove the most serious drawbacks.

Efficiency of the regulated Rhine.

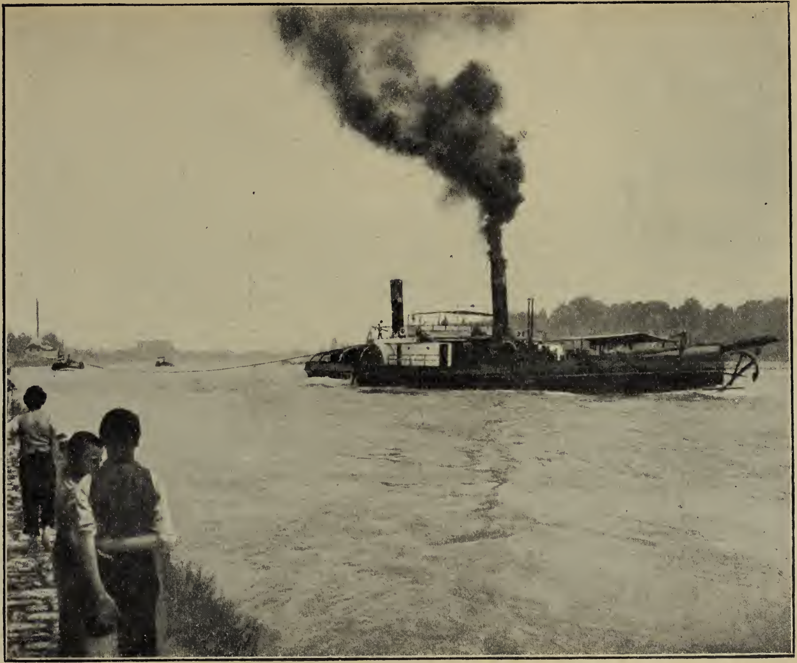
A waterway of unlimited capacity would thus be created. The yearly traffic might be raised to, and maintained at, twenty million tons, with vessels of 2000 tons and more going right up to Bâle. As to the swiftness of the current, which owing to the rather considerable fall of 0.87‰ averages about three meters, experience has amply proved that it can be overcome. A paddle steamer of 200 HP will tug a freight load of 2200 to 2400 tons, either in one vessel or on two barges, from Strassburg to Bâle in 32 to 36 hours. Down river the distance from Bâle to Strassburg is covered in 5 to $5^{1}/_{2}$ hours. Certain fast freight steamers run the stretch up-river in 12—13 hours, down river in 5 hours. A fast freight steamer fitted with searchlight will reach Koblentz within the first twenty-four hours (265 miles), and land at Rotterdam on the second or third day. A river on which powerful tugs may be employed to overcome the disadvantage of a strong current, enabling a clear freight load of above 2000 tons to be tugged at once in one train of barges up to a first class commercial centre, is fully capable of meeting the exigencies of international traffic.

Exclusion of Switzerland from the free Rhine.

Nothing, therefore, could have been more natural than the expectation of a universal approval of the scheme to create a fully navigable waterway by means of the necessary and possible regulation. However, this approval has not been forthcoming. First there was Germany, while she held sway on the Rhine, to resist stubbornly the improvement of the navigation on the open Rhine up to Bâle. Thus at the meeting of the Reichstag of May 8th 1918 the Secretary of the Reichswirtschaftsamt (Board of Trade), Freiherr von Stein, answering a question of the member of the Reichstag Dr. Gugelmeier, Mayor of Lörrach, concerning the navigation on the Upper Rhine, declared that Switzerland was not entitled to any claims from the Rhine Navigation Acts. This declaration, which reversed the principle of free navigation on the Rhine, was received with indignation in Switzerland and France. The liberty of the traffic on the Rhine and the internationalisation of the river were henceforth the unanimous demand of the Swiss and French press. But how suddenly the attitude of the latter veered round when the rule and sway of the Rhine passed from Germany to France! Soon there appeared in Alsatian journals and dailies articles and statements opposing the continuation of the Rhine navigation beyond Strassburg and up to Bâle. They demanded straight out that the basin of Strassburg should be constructed into the terminus harbour. The shipping traffic to Bâle was to be confined to the Alsatian canals, namely the Rhine-Rhone-Hüningen canal (81 miles), which it was proposed to enlarge sufficiently to carry 280 t. vessels. And even though, at a later time, a canal should be constructed along the Rhine for power exploitation, it was to have dimensions allowing vessels of only 600 tons, 800 to 1000 tons at the very outside. An essential condition of these proposals is that the shipping traffic to and from Bâle should have to pass through Strassburg harbour. Here the goods would have to be transferred from the big Rhine barges of 1500 to 2000 tons to the canal barges of 280 tons (or, on the new canal, 600 tons) to be towed to Bâle on these small and medium barges. Strassburg, then, claims to control the whole traffic to and from Switzerland. If this claim is admitted it will be an easy matter, by means of fiscal tarifs, so to hamper the shipping to Bâle as to destroy the advantages of navigation as compared with the traffic by rail. Strassburg would be in a position at any time to prevent the Rhine harbours at Bâle from entering into a competition with her own.

These being the facts it is not imaginable that the prospective canalisation should ever amount to anything like a substitute for the free Rhine. Indeed, granting even the most favourable assumption, namely the construction of twin locks for trains of barges and a third lock for freight steamers — that is, three locks to each level — it would never be possible to bring the system up to the capacity and rapidity of the navigation on the Rhine itself. Each lock causes an average delay of an hour, provided that all goes smoothly. Supposing that the side canal is fitted out with only eight locks, a single steamer or barge train on its down voyage would thus lose eight hours. A tug train sailing down the open river at a rate of 14 miles an hour will make no less than 110 miles in this time, i. e. the whole stretch from Bâle to the frontier of the Pfalz. The total of hours required for a tug train to go from Bâle to Strassburg in the artificial waterway amounts to 8 plus 13 = 21, assuming that the maximum rate, with a view to sparing the bottom and bank defences, is to be 10 km. an hour. In the open river a tug train will, in this amount of time, go some 250 miles. Nor is the canal navigation preferable in the up-traffic, in spite of the considerably stronger current in the open, natural river course (2.5 to 3.5 meters a second) as compared to the flow in the canal of 1.5 to 2.0 meters. If the speed of ships going up the canal is greater than in the open river (5—6 km. an hour instead of 3.5—4 km.), this advantage is counterbalanced by the loss of time (8 hours) in passing the locks. A tugging train going up the canal will, for reasons of economy, not exceed a speed of 5 km. an hour. It therefore takes 25 plus 8 = 33 hours to make its way from Strassburg to Bâle, which is the same total as on the river. Now it is altogether impossible that a navigation canal should ever be constructed to equal the capacity of the Rhine. Consider the cost of the building. The locks and veering basins for one single canal level would require, at pre-war prices, a sum of 1,000,000 £ to construct, so that the cost of the entire canal with eight locks would amount to eight million pounds, i. e. six to seven times as much as the cost of the regulation. And what is the good of a medium navigation canal admitting ships of only 600 to 1000 tons? Its capacity would be exceeded before the yearly traffic had reached 2$^1/_2$ million tons. A canal of these dimensions could not yield more than 10% of the efficiency of the river itself. Besides it would take over half a century to be completed. Add to this the further disadvantage that the canal could not be kept in function uninterruptedly either. Examinations, repairs, ice, and so on, would restrict the navigation on the canal to a maximum of 300 to 320 days annually. And out of the twenty-four hours in the day it is likely that no more than ten would be available for the passing of the locks, while for the remaining fourteen hours the locks would normally be closed. The management of the locks, the control of the banks and the traffic would cause very considerable technical and financial difficulties, which should not be lost sight of.

All this bother of managing the locks and controlling the service, which are likely to prove extremely onerous and irksome, are entirely dispensed with on the river, which is navigable without any interruption day and night, if the freight steamers are fitted with search light. The administration and technical service on the canal, added to the restrictive measures in the shipping regulations will weigh on the navigation so heavily that shipping on the canal as



A Tug-train entering Bâle-Harbour.

compared to the traffic by rail between Strassburg and Bâle would not be any cheaper. And thus all the technical arguments about the imaginary advantages of the lock-canal prove to be futile.

Strassburg aims at controlling the traffic.

A further drawback is that the whole of the canal traffic will have to pass through the Strassburg harbours. Thus Strassburg is to control the navigation on to Bâle, both as regards the technical management and the fiscal duties and freight rates. Strassburg, therefore, will be interested in the traffic to and from Bâle both actively and passively. Experiences in the up-Rhine traffic so far are somewhat ominous in this respect. How very different will the situation be when the freight ships pass outside Strassburg, without being detained within the traffic precincts of this town! The Rhine traffic to Switzerland will not risk being handicapped by the imposition of arbitrary freight tarifs. But it is not only the Swiss commerce that is bound to suffer by being directed, or forced, through the Strassburg ports and into the Alsatian canals. Such a state of things must affect, and to a much higher degree even, the export interests of the mercantile States on the North Sea participating in the opening up of the Swiss market.

England's interest in the free Rhine.

If hitherto these States have not taken an active part in dealing with the Rhine problem it is owing to their being insufficiently informed about the paramount importance of a free connection on the Rhine between Switzerland and the mercantile ports on the North Sea. The point to which England is interested in free navigation on the river up to and into the Swiss territory is illustrated by the English export returns, which from

Fr. 116,150,400 in 1913 rose to
Fr. 269,178,000 in 1917.

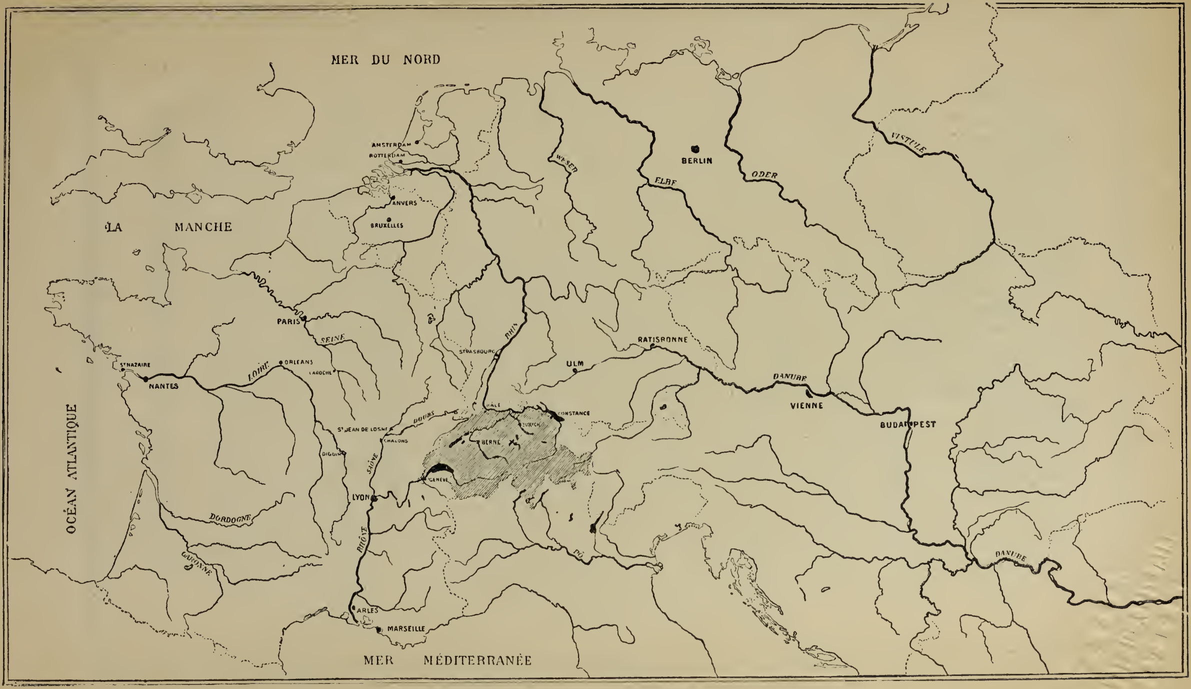
So far the goods in question have mainly been highly tariffed ones, because the others, owing to the lack of a waterway, cannot be exported to Switzerland.

Once put in operation the navigation on the Rhine will allow, first of all, English coal, unforged iron, rails, axles, iron goods, machines etc. to be exported to Switzerland, while in the down river trade highly tariffed Swiss goods, such as condensed milk, chocolate, dyes, silk ribbons, silk tissues, embroideries, watches; but likewise heavy goods such as granite stone, cement, electro-chemical products will be exported to England. Up river we shall have English heavy goods, collected in uniform tug trains of 1000 to 2000 tons freight load, moving on at a steady slow rate. Along with these there will be numerous fast freight steamers. Small ocean going boats drawing about nine feet of water will be able to sail right on to Bâle on 186 days of the year. In this connection we may also point out the possibility of introducing a passenger service between London and Bâle by means of improved sea-sleds. Such a variety of possibilities for transport is, on the face of it, excluded from a canal with many locks, as the one planned as a substitute for the open Rhine route between Strassburg and Bâle. The open Rhine, therefore, is destined to facilitate the future expansion of the international traffic by allowing full scope for an unhampered display of the productive forces, whereas the rigid, unelastic Alsatian canal will create an unalterable situation. The canal is bound to destroy for ever all the unlimited possibilities for developing a mighty trade.

What is at stake is the commercial supremacy of the southern North Sea basin, which can only be maintained and strengthened by securing the floating traffic with large vessels on the only inland waterway available for England on the Continent. England, or rather the Thames mouth, is the centre which naturally collects and supplies the traffic on the Rhine. English oversea trade, by creating shipping stations at Antwerp, Rotterdam, and Amsterdam, and by improving the navigation on the Rhine by a combined use of English lighters and an English fleet of Rhine steamers and Rhine barges, will be assisted most efficaciously in extending its sphere of influence on the Central European markets. By taking an active part in the Rhine traffic the English maritime trade might find a customer for some 15 % of the English exports in the regions opened up by the navigation on the Upper Rhine south of Strassburg. The inland navigation of England will not find its finest possibilities on her own inland waters, which are altogether inaccessible to large vessels; but rather, and exclusively, on the waterway of the Rhine. If England will but make use of her own opportunities and assert her claims, she may create on the Rhine, in Switzerland, in the very heart of the European continent, an inland trade centre with a network of railway lines radiating from Bâle and spreading fanlike over the whole Alpine region. Incomparably more valuable than a navigation system on her own inland waters, which owing to their shortness cannot be profitable, and, moreover, is bound to clash with the interests of the railways, England, therefore, will find a naturally navigable export waterway from her North Sea trade zone — which is controlled by her — to the Alpine countries in central Europe. Here, on this common field of the North Sea harbours, the interests of England coincide with those of Belgium and Holland. It is a vital problem for every one of these nations trading on the North Sea that the natural waterway of the Rhine should be kept free and open from the delta up to Bâle. In order to safeguard this interest these North Sea States should come to an agreement securing for them the free navigation on the regulated Rhine. It is to be expected that Italy, too, will join a league for the free Rhine, when she has been convinced that the development of her Ligurian and Adriatic ports depends on an organic connection with the Rhine base from the Lake of Constance (East bay) to Bâle (136 miles).

The Italian interest.

The Italian harbours on the gulf of Genoa, owing to the geographical conditions and the insufficiency of the railway system, are overtaxed. A reduction of its coal trade, by directing it over the Rhine route and the Alpine railways, to give Genoa a chance of increasing her traffic in more highly tariffed goods, can only be to the advantage of the Italian maritime trade. There is one more point to be considered. Now that the North Adriatic has become a decidedly Italian trading area, an almost complete change has taken place in the direction of the traffic from the North Adriatic harbours. While Austria-Hungary existed as a compact economic unit of 676,000 square kilometres and a population of 52 million, with Trieste and Fiume for commercial harbours, the natural trade roads from Trieste were the Semmering and the Karawank railway. These have now broken down, and instead of a north-eastern direction, which it took previously, the traffic from the Adriatic must seek an outlet to the north-west. Italy controls the Brenner and will, if the railway line from the Adriatic to the Lake of Constance across the Lower Engadine comes to be built, have at her disposal a railway line with more than 250 miles lying on her own territory, and running across the Alps from Trieste (Venice) up Val Sugana to Trient, Bozen, Mals, Schuls, Klosters, Maienfeld, Rorschach (Bregenz). In order to develop Trieste, and particularly Venice, into international harbours — which is in the interest of the Italian maritime commerce — and to free the Northern Adriatic from its local limitations, Italy will be forced to open up an outlet to the Lake of Constance and the Upper Rhine. Thanks to the cheapness of the transport down the Rhine route, this will extend and advance the sphere of influence of the Adriatic ports, which are mainly import harbours for high tarif goods. As these ports are far less concerned with the coal trade than the Ligurian harbours they do not risk losing anything from competition in the coal traffic with the Rhine and Lake of Constance route. Adriatic, Po, and Rhine, which complement one another, form one organic traffic unit, the counterpart of the Gulf of Lyons with Marseilles, Cette, the Rhone and the French canals in France. Thus Italy, too, is interested in protesting against the crippling of the traffic on the Upper Rhine, and in joining in a concerted action towards maintaining and improving the Rhine route.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3. The scheme of connecting Switzerland with the network of waterways of Upper Italy through Lago Maggiore.
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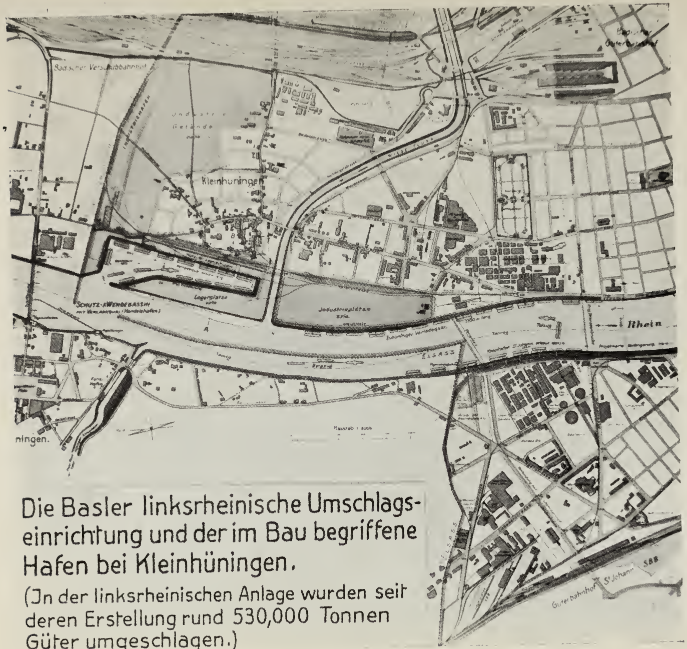

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La Commission Centrale, la future maîtresse du Rhin, par Jean R. Frey	Fr. 2.—

Gutachten des Preisgerichts für den öffentlichen Wettbewerb zur Gewinnung von Entwürfen für die Schiffbarmachung des Rheins von Basel bis in den Bodensee	Fr. 1.—
Die wirtschaftliche Begründung der Rheinschiffahrt von Strassburg bis zum Bodensee, von Geh. Oberbaurat Dr. ing. Leo Sympher erschienen in den „Rheinquellen“, 1914, Heft 7—9	Fr. 2.50

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